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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,535	06/27/2001	Jeom Jae Kim	8733-459.00	3210

30827 7590 05/06/2003

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EXAMINER

KIELIN, ERIK J

ART UNIT PAPER NUMBER

2813

DATE MAILED: 05/06/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,535

Applicant(s)

KIM ET AL.

Examiner

Erik Kielin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 11-18 and 26-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

1. Applicant's election of the invention of Group I, claims 1-10 and 19-25, in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 11-18 and 26-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "304a" has been used to designate both "304a" and "304a'" in Fig. 5B and 5C, but in Fig. 5D the same part is labeled "304a' ". In the specification the part is indicated to be 304a'. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 305d. A proposed

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drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

Liquid crystal display having a member for preventing electrical shorting.

7. The disclosure is objected to because of the following informalities:

on p. 8, line 11, replace "3305c" with --305c-- for consistency.

Appropriate correction is required.

Claim Objections

8. Claim 20 is objected to because of the following informalities:

in line 3, after "capacitor" insert a period for proper punctuation.

Appropriate correction is required.

9. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The use of the terminology "island" to describe the short-prevention member must be included in the specification.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 19, 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,072,550 (**Kim**).

Regarding claim 19, **Kim** discloses a method of fabricating a liquid crystal display device, comprising:

forming a first electrode pattern 11, 111 on a first substrate 100 having a pixel area (Figs. 4 and 6);

forming an insulating layer 112 over the first substrate 100 and over the first electrode pattern 11, 111;

forming a short-prevention member 113 on the insulating layer 112 and over an edge of the first electrode pattern (Figs. 4 and 6);

forming a second electrode pattern 14, 15, 16 on the insulating layer 112; and

forming a pixel electrode 23 in the pixel area.

It is seen to be inherent that semiconductor region 113 of **Kim** is the short-prevention member and prevents electric shorts in the second electrode pattern 14, 15, 16 by Applicant's own admission in the specification. The instant specification states that when the semiconductor layer extends beyond the gate and gate insulating region, no residual short-causing conductive material build up in the edge regions (p. 8, lines 1-12; Figs. 3 and 4). Because the semiconductor

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region **113** in **Kim** extends beyond the gate electrode in edge regions where residue would form, no residue will be formed in this area along the edge region of the electrode pattern and accordingly, no short can form in this area. (See MPEP 2112.)

Regarding claim 22, the gate electrode **111** is formed under the insulating layer **112**; the semiconductor layer **113** is formed over the insulating layer **112**; and the source/drain electrodes **15, 16** are formed over the semiconductor layer **113** (Figs. 4 and 6).

Regarding claim 23, the short-prevention member **113** is formed of a same material as the semiconductor layer **113**.

Regarding claim 24, the short-prevention member **113** is formed as an island (Fig. 4).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims **1-10, 20** and **21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kim** in view of Applicant's admitted prior art (**APA**).

Regarding claim **20**, **Kim** discloses that the first electrode pattern includes a gate line **11** and a gate electrode **111**, but does not state that the first electrode pattern includes a lower electrode of a storage capacitor.

APA teaches that it is conventional in the art to form a first electrode pattern having a lower electrode of a storage capacitor. (See instant specification p. 3, first paragraph.)

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It would have been obvious for one of ordinary skill in the art, at the time of the invention to form a lower electrode of a storage capacitor in the first pattern of **Kim** in order to form a storage capacitor and because **APA** teaches that this is conventional in the art. Then the only difference is that **Kim** does not indicate the method of patterning the first electrode pattern is by wet etching.

APA teaches that it is conventional to wet etch metal patterns to form electrode patterns in the production of LCDs. (See instant specification p. 3, lines 16-20.)

It would have been obvious for one of ordinary skill in the art, at the time of the invention to use wet etching as the method of patterning the first electrode pattern in **Kim**, because **Kim** is silent to the method by which the patterning is carried out, such that one of ordinary skill would be motivated to use conventional methods, such as wet etching, as taught by **APA**.

Regarding claim 21, **Kim** discloses that the second electrode pattern includes a data line 12 and source/drain electrodes 15, 16, but does not state that the second electrode pattern includes an upper electrode of a storage capacitor.

APA teaches that it is conventional in the art to form a second electrode pattern having an upper electrode of a storage capacitor. (See instant specification p. 3, lines 11-15.)

It would have been obvious for one of ordinary skill in the art, at the time of the invention to form an upper electrode of a storage capacitor in the first pattern of **Kim** in order to form a storage capacitor and because **APA** teaches that this is conventional in the art. Then the only difference is that **Kim** does not indicate the method of patterning the second electrode pattern is by wet etching.

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APA teaches that it is conventional to wet etch metal patterns to form electrode patterns in the production of LCDs. (See instant specification p. 3, lines 16-20.)

It would have been obvious for one of ordinary skill in the art, at the time of the invention to use wet etching as the method of patterning the second electrode pattern in **Kim**, because **Kim** is silent to the method by which the patterning is carried out, such that one of ordinary skill would be motivated to use conventional methods, such as wet etching, as taught by **APA**.

Regarding claims 1-5 and 7-9, **Kim**, as explained above, discloses each of the claimed features except for indicating that there exists residual material on the edge of the second electrode pattern.

APA teaches that residue material is left as a matter of wet etching the gate electrode. (See instant specification p. 3, lines 16-20.)

It would have been obvious for one of ordinary skill in the art at the time of the invention to wet etch the second electrode pattern of **Kim**, as noted above with regard to claim 21, and accordingly, the residual material would be left on the edge portion wherever the short prevention (i.e. the amorphous silicon layer 113) layer of **Kim** is not found.

Regarding claim 6, although this claim has no patentable weight since it is a product by process claim, **Kim** nonetheless discloses that the short-prevention member is formed at a same time as the semiconductor layer 113 because the semiconductor layer and the short-prevention layer are integral --just as in the instant application.

Regarding claim 10, it is seen to be inherent that discloses that the LCD in **Kim** further includes a second substrate adjacent the first substrate; and a liquid crystal between the first

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substrate and the second substrate, as it would not be an LCD, otherwise, as admitted to in the instant specification p. 2, lines 17-19.

14. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kim** in view of US 5,060,036 (**Choi**).

The prior art of **Kim**, as explained above, discloses each of the claimed features except for indicating that the short-prevention layer (i.e. the amorphous silicon layer 113) is formed by dry etching.

Choi teaches a method of forming the silicon active region of a TFT for a LCD wherein **Choi** indicates that it is known to pattern the amorphous silicon active region using dry etching (col. 2, lines 41-47).

It would have been obvious for one of ordinary skill in the art, at the time of the invention to use dry etching to pattern the short-prevention member (i.e. the amorphous silicon layer 113) of **Kim** using dry etching, because **Kim** is silent to the method of patterning, such that one of ordinary skill would use a well known etching method for amorphous silicon already proven successful for use in TFT fabrication for LCDs, such as that taught to be conventional in **Choi**.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

GB 2322967 A (**Kim**) and KR 98-067741 A (**Lee et al.**; US equivalent 6,184,948 B1 provided), each assigned to LG Electronics anticipates at least claim 19.


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JP 02-10331 A (**Yoritomi** et al.) discloses a short-prevention member between lines of a second electrode pattern (Title).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik Kielin whose telephone number is 703-306-5980. The examiner can normally be reached on 9:00 - 19:30 on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached at 703-308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Erik Kielin

May 1, 2003